



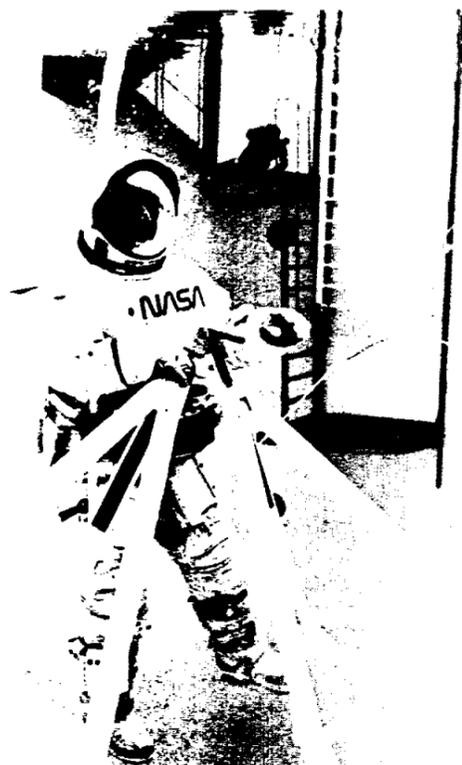
# ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS

VOL. 16 NO. 9

Friday, April 29, 1977



**CONSTRUCTION IN SPACE** — A space-suited employee joins two structural beams in the neutralized gravity environment of the Neutral Buoyancy Simulator (water tank) at Marshall Space Flight Center, Ala. The first in a series of large space structure testing activities, the task is typical of basic construction tasks required to assemble structural beams in space.

## Astronaut Henize to fly May 16 on airborne Spacelab simulation

Astronauts Karl G. Henize and Robert A. Parker will be mission specialist and backup mission specialist, respectively, on a 10-day simulation of a Spacelab mission to be conducted by NASA and the European Space Agency (ESA).

The simulation, to be held at Ames Research Center, Mountain View, Calif., will use an aircraft packed with Spacelab-type hardware and experiments and a mobile van to provide living quarters to permit isolating the crew as they would be on a space mission.

Called ASSESS II (Airborne Science/Spacelab Experiment System Simulation), the mission will involve four payload specialists (two from ESA and two from NASA) in addition to the mission specialist. The crew will be constrained to the aircraft and the van

for the 10-day period.

As mission specialist for the simulation, Henize will control and monitor aircraft (spacecraft) experiment support systems, coordinate activities of the payload specialists and provide interface between payload specialists and the Galileo II, a converted Convair 990 four-jet transport on which ASSESS II will be flown. It begins May 16.

ASSESS II will test techniques and modes of operation which will be applied to Spacelab, a space laboratory being developed by ESA in a cooperative program with NASA.

Objectives of the simulation, in addition to obtaining basic scientific information, include evaluation of management of payload and mission operations to develop low cost concepts for Spacelab, studies of interactions between experiment operators (payload specialists) in Spacelab and principal investigators on the ground and development of minimum training requirements for Spacelab participants in carrying out experiment operations.

A further objective is to evaluate a plan to include use of principal investigators as payload specialists.

The Galileo II will make six-hour flights on each of the 10 days of the simulation and the payload and mission specialists will remain confined throughout the 10-day period to work on the experiment payload

and sleep in adjacent living quarters.

Six simulated Spacelab missions have been conducted since the program began in 1972 — each mission designed to evaluate potential Shuttle-Spacelab concepts in increasing detail. ASSESS II is the second mission to use the Galileo flying laboratory. The first, ASSESS I, was conducted jointly with ESA in June, 1975, and involved five data flights over a six-day confinement period.

ASSESS II is a joint effort by NASA and ESA. Of the 10 instrument packages, five are furnished by ESA and five are furnished by NASA. The experiments are generally in the fields of Earth resources, atmospheric pollution monitoring and infrared astronomy.

NASA has designated Robert T. Menzies and David S. Billiu, both of the Jet Propulsion Laboratory, Pasadena, Calif., as prime payload specialists. Leon B. Weaver of Marshall is backup.

ESA has selected Claude Nicollier of Switzerland, Juergen Fein and Klaus Kramp of Germany and Michael Taylor of England as payload specialists.

The mission will be completed May 26. On May 30, the aircraft will be flown to Paris where it will be exhibited as configured for the ASSESS mission at the Paris Air Show.

## NASA engineers build radio unit to aid hospital communications

Out in West Texas, where there is nothing but "miles and miles of miles and miles," physicians and nurses have better things to do than to figure out how to "patch" an incoming ambulance radio call into a hospital phone system.

Most attempts at wiring together radio and telephone communications between a central hospital and on-scene ambulance paramedics usually resemble yesterday's spaghetti.

Communications and biomedical engineers at JSC have designed and built a prototype emergency services communications unit which has been installed in the Odessa Medical Center Hospital.

The hospital is one of several medical facilities in the Permian Basin Emergency Medical System,

and is the medical "control center" for the 17-county system.

The communications console, scarcely larger than an electric typewriter, was built from commercially-available components and includes all emergency medical system (EMS) communications functions that are needed for a regional hospital.

In the radio section of the console, easy-to-operate controls allow a physician or nurse to consult with local or regional ambulance drivers and paramedics, contact other hospitals, receive incoming electrocardiograms, set up a radio-to-telephone patch and page hospital staff members.

The telephone system includes a hotline from the Emergency Medical System's resource control cen-

ter, an automatic dialer for special-care centers and other facilities in the Permian Basin network, incoming or outgoing electrocardiographic data for cardioscope displays and strip recorders between hospitals and a hospital intercom terminal.

After several months of field testing in the Odessa Hospital, NASA engineers will make whatever design changes are needed to the console.

Complete sets of design and manufacturing drawings for the console are expected to be available to EMS organizations by May 30, 1977 from the Technology Utilization Office, NASA Johnson Space Center, Houston, Texas 77058. EMS groups would then contract locally for construction of consoles fitting their specific needs.

## Two JSC employees receive high awards

Two JSC employees have each received the Exceptional Service Medal, one of NASA's highest awards, for their contributions to the successful Viking program.

Recognized for their efforts were Robert R. Frazer, JSC-Palmdale (Calif.) operations manager, and Scott H. Simpkinson, flight safety manager for the Space Shuttle Program.

Frazer was cited "for his outstanding contribution to the conduct of the Viking Lander integrated test program. His experience

and professional skills were essential to the eventual success of Viking's exploration of Mars."

Simpkinson received the award "in recognition of dedicated leadership as chairman of the Viking Special Critical Design Review Team which contributed significantly to the success of the Viking spacecraft."

Simpkinson was presented his medal in ceremonies April 19 at Langley Research Center, Va., lead center for Viking. Frazer received his award by mail in Palmdale.

## Sadie Hawkins' Day Picnic slated May 7

Dogpatch comes to JSC Saturday, May 7, with the Sadie Hawkins' Day Picnic at the Gilruth Recreation Center.

A highlight of the EAA-sponsored event should be the Li'l Abner and Daisy Mae look-alike

contest for which prizes will be awarded.

The picnic offers something for everyone.

There are carnival rides, arts and crafts displays, bingo, egg toss, log pull and for the kids, a bubble gum contest.

There's the dunk tank, a band called "Steamboat Willie," special performing groups and more.

With a \$1 general admission ticket you get all that plus popcorn, cotton candy, soft drinks and beer.

If that's not enough for you, buy the \$3 ticket and you'll get a barbecue plate along with everything else.

Buses will be running between the parking areas and the picnic site from 10:30 a.m. to 6 p.m.

The picnic begins at 11 a.m. and ends at 5 p.m. The barbecue meal will be served from noon to 3 p.m.

In order to reserve barbecue plates, you'll need to get your tickets early. They are available from your EAA representative or at the Bldg. 11 Exchange Store.



**MEDICAL COMMUNICATIONS CONSOLE** — A JSC clinic employee looks over a typewriter-sized prototype emergency services communications console developed by JSC biomedical and communications engineers from commercially-available parts. This type of console has been installed for field testing at the Odessa Medical Center Hospital.

# Center presents cash awards

## Suggestors, inventors, writers split \$2,721

Twenty JSC employees and retirees shared \$2,721 in cash awards presented April 15 in recognition of their outstanding suggestions, inventions or tech briefs.

Charles J. Bauer Jr. of the Public Affairs Office received \$616 for his suggestion that public information documents be mailed third class instead of first class. The change is estimated to have saved the center \$8,800 per year.

Judith S. Alexander of the Institutional Data Systems Division was given \$600 for her suggestion of and initiative in obtaining from the University of Maryland a computer program which decodes and explains error messages to the terminal user of the Exec 8 computer and significantly reduces time required to resolve error problems.

Carl A. Romero of the Engineering Division received \$500 for suggesting that steam pressure be reduced in the utility steam distribution system thus reducing the amount of natural gas required as fuel for the center's steam boilers resulting in a savings of at least \$13,400 per year.

Dorothy O. Phelan of the Management Analysis Office was given \$100 for her suggestion that the date of each trip be included on the official centerwide travel printout.

Leroy G. Fehrenkamp, retired, and James T. Heffernan, Jack A. Kinzler and William S. Lee, all of the Technical Services Division, received \$100 each for their invention of an aircraft surface finishing process.

The four developed a method of surface coating in which a plastic film-type material is applied to aircraft components, such as a wing, fairing defects in aerodynamic shape, sealing the entire surface from air leaks and providing a surface of exceptional smoothness,

thus reducing drag and increasing aerodynamic and fuel efficiency.

Jack Naimer of the Structures & Mechanics Division and Mathew I. Radnofsky, retired, shared \$100 for their invention of a high-visibility, fluorescent air sea rescue panel of thin plastic film designed to replace the currently used sea dye marker.

Receiving \$50 each for their work on tech briefs were Joe Fowler, Tracking & Communications Development Division; Winston D. Goodrich, Structures & Mechanics Division; Herbert S. Kobayashi, T&CD Division; Jerry C. Poradek, Systems Evaluation Office, and H. Eugene Winkler, Crew Systems Division.

Given \$35 for their suggestions were Edwin L. Shropshire, Technical Services Division; Ronald D. Lerdal, Flight Control Division, and Glenda I. Warren, Astronaut Applications Office.

Receiving \$25 for suggestions were Harold D. Siegfried and Rees H. Underhill, both of the Technical Services Division.



TOP BOSS — Orbiter Project Manager Aaron Cohen receives a plaque naming him 1977 Boss of the Year at the April meeting of the Clear Lake Area Chapter, American Business Women's Association. Cohen is flanked by his wife, Ruth, right, and secretary Susan Gregory, standing left. The awards banquet was held at the Sheraton King's Inn.

## Aaron Cohen chosen group's Boss of Year

Aaron Cohen, manager of the Orbiter Project, was named 1977 Boss of the Year by the Clear Lake Area Chapter of the American Business Women's Association.

Announcement of the award was made during the Boss Night pro-

gram at the chapter's April meeting held at the Sheraton King's Inn.

Cohen was nominated for the honor by his secretary, Susan Gregory, whose recommendation was reviewed by three outside judges.

Gregory described her boss as "a dedicated, hardworking and technically talented manager" who is responsible for one of the major elements of the Space Shuttle system.

She said Cohen has delegated to her a wide variety of exciting and challenging administrative tasks, has encouraged her to work to her maximum potential, has shown real consideration and has given her new assignments to expand her knowledge and experience as his job has become more demanding.

Cohen joined NASA in 1962 and served as manager for the command and service modules in the Apollo Spacecraft Program. As manager of the Orbiter Project he directs the design, development, production and test of the Space Shuttle Orbiter.

He received two NASA Exceptional Service Medals in 1969, the NASA Distinguished Service Medal in 1973, and JSC medals in 1970 and 1976.

## JSC, RI sign contract supplement

JSC has signed a supplemental agreement with Rockwell International Corporation Space Division, Downey, Calif., for additional work on the Space Shuttle Orbiter.

The agreement includes design changes in the Orbiter airlock and tunnel which permit "shirtsleeve" movement of crewmen between the Orbiter and the European-built Spacelab in Orbiter's cargo bay. Rockwell performs the bulk of the Orbiter work at the Downey plant and at field offices in Palmdale, Calif.; Houston, and Kennedy Space Center, Fla.

The \$3,076,250 supplement brings the estimated value of the Orbiter cost-plus-award-fee contract to approximately \$3.04 billion.

## JSC picks Pan Am for contract

JSC has selected Pan American World Airways, Inc. Aerospace Services Division of Cocoa Beach, Fla., for negotiations leading to award of a contract for maintenance and operations support services at the center.

The contract will cover maintenance and operation of utility systems such as heating and cooling, electrical power, potable water and waste disposal; maintenance of buildings, roads, parking lots and drainage ditches; maintenance of JSC-occupied buildings and utility systems at nearby Ellington AFB; special-purpose equipment maintenance such as laboratory test, machine shop, photographic processing, cafeteria, printing and reproduction, and elevators; and facility emergency and disaster planning.

Pan American's proposed estimated cost and award fee for the initial one-year contract starting May 1, 1977, is \$7,495,000. Two additional one-year extensions are expected to be negotiated.

## NASA satellite tracks sailboat through famed Bermuda triangle

The value of satellites to search and rescue missions for small craft at sea was recently demonstrated by a retired NASA engineer and a Florida family of three who sailed a 10-meter (33-foot) sailboat 965 kilometers (600 miles) through the "Bermuda Triangle" area.

During the 30-day trip, a satellite provided the general location and condition of the voyagers to engineers at NASA's Goddard Space Flight Center, Greenbelt, Md.

Small or medium-sized craft venturing into the open sea usually must rely on marine radio telephone communications. Such systems are limited to about 40 km (25 mi.) line-of-sight range. Other, longer range voice radio equipment

is subject to static and is often unreliable.

The principal experimenter for the satellite search and rescue test is James L. Baker, a retired NASA engineer from Sherwood Forest, Md. He conducted the extensive tests aboard the sloop "Sirius." Owner Louis Van Houten of Key Biscayne, Fla., skippered the craft with his wife Roz and son Peter as crew.

NASA's Nimbus-6 meteorological research satellite kept tabs on the four voyagers by monitoring continuous signals from a small transmitter on the sailboat. This battery-powered unit, normally carried by meteorological balloons, automatically sends out a signal once a minute for relay to Goddard via the satellite.

Within one hour after the data was received at Goddard, a computerized system printed out information on the sailboat's position.

About 40 per cent of the sailboat positions, as derived from the satellite data, were within 1.8 km (1

mi.) of the true positions. The overall accuracy of the derived positions was within 4.8 km (3 mi.).

From its Earth polar orbit, the Nimbus-6 was able to track the sailboat for about three and a half hours around local noon and another similar period of time around local midnight each day.

As part of the test, Baker evaluated a pushbutton distress alarm system which was connected to the onboard transmitter. Simulated distress messages, craft identification and weather and cruising conditions were relayed successfully via the satellite to Goddard with this device.

The pushbutton unit, developed by Baker under contract to Goddard, is designed to repeat its distress message automatically, once energized. Thus, a crew confronted with a genuine emergency could initiate the distress message and then turn its attention to meeting the emergency.

Due to the compactness and light weight of the transmitter, its battery and antenna, and the pushbutton unit, the entire system could be transferred quickly to a lifeboat if necessary.

Baker coordinated the experiment with Goddard through a NASA communications research satellite, the Applications Technology Satellite-1 (ATS-1).

"It was a comfortable feeling for us to know that Goddard had up-to-date information on our position and cruising conditions, particularly since we were in the notorious Bermuda Triangle where many craft have disappeared," Baker said after the voyage.

## Setting it straight

In the front page article on the manned captive Orbiter flights (*Roundup*, April 15) the statement was made that the tailcone-off configuration of the Orbiter will produce twice the lift-over-drag ratio as with the tailcone on.

Actually, as was brought to our attention, that should have said one-half the lift-over-drag. It was our mistake.

## Applicants total 2,313

The Astronaut Candidate Program Office reported April 18 that 2,313 applications have been received for civilian astronaut pilot and mission specialist candidate positions. Of those, 298 were from women.

Of a total 15,574 applications

and announcements mailed out by request, 241 went to JSC employees.

Civilian applications must be postmarked no later than June 30, 1977. For information, write the Astronaut Candidate office, Code AHX.



## ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

The **Roundup** is an official publication of the National Aeronautics and Space Administration Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for JSC employees.

Editor: Richard Finegan      Photographer: A. "Pat" Patnesky

# EAA ATTRACTIONS

## TICKETS

The following tickets are available at the Bldg. 11 Exchange Store from 10 a.m.-2 p.m., Monday - Friday:

**ABC Interstate Theaters** - \$1.50 admission tickets now available.

**Dean Goss Dinner Theater** - Comedy production. *The Lady Who Cried 'Fox'*, through May 8; *Agatha Made Me Do It*, beginning May 9. Tickets \$16/couple available for every night except Monday, Saturday.

**Sea-Arama Marineworld** - Tickets on sale. \$3.75 for adults, \$2.50 for children. Open until dusk year-round.

**Astroworld** Tickets available at \$6.95 for adults and children. That's a \$1 discount.

**Six Flag** - Adult and Children tickets, \$6.75 each.

**Disney Magic Kingdom Club** - Free membership cards. Also available is Disneyland passport, good any day through May, which allows unlimited use of all Disneyland attractions. Adults, \$7.50; juniors, \$7; children, \$6.

## AERO CLUB OPENINGS

The JSC Aero Club presently has openings in the advanced and primary sections. A Beechcraft Bonanza is available for \$26/hr for pilots with more than 150 hours flight experience. For pilots with less experience, a Cessna 172 and Cessna 150 are available for \$16 and \$13/hr, respectively. Pilot's liability is covered with a million dollars' worth of insurance.

Membership is open to all JSC on-site employees, both civil service and contractor, and their dependents. FAA-certified flight instructors are available for those who

want to learn to fly. For information, contact Jackie Bohannon, X-4161, or Gary Raines, X-3876.

## VISIT THE BAHAMAS

The Aerospace Cultural Club has reserved 20 seats for another trip to the Bahamas, this one departing July 23 and returning to Houston July 30.

Cost of airfare, hotel and many extras is \$249 for the week. This trip has been highly recommended by those who made it last fall. For further information, contact Tom Gallagher, X-2657.

## DIVING SEASON ARRIVES

Diving season is here. Anyone wishing to join the JSC Lunarfin's Scuba Club should call Karen Clark, X-2809. Members wishing to sign up for the club dives should contact Joe Mendiola, X-5886.



## SUMMER CLASSES

**Basic Auto Mechanics:** Registration deadline May 18, \$15/person plus cost of parts for own car. Class sessions Thurs 7-9 pm, May 26, June 2, 9 and 26. Lab on Saturdays, June 4, 18.

**Beginners Oil Painting:** Registration deadline June 6, \$30/person plus supplies. Thurs 6-8 pm, June 16, 23, 30, July 7, 14, 21.

**Group Tennis Lessons:** Two sessions, beginning May 16 (sign-up by May 9) and July 12 (sign-up by July 1); \$30/person, adults & mature teens. Beginner & intermediate classes, eight 1-hr lessons each. First session meets Mon & Wed nights, second session meets Tues & Thurs nights.

All classes meet at the Gilruth Recreation Center. For further information, call the center at X-4921.

## MEN'S BASKETBALL FINALS

Undefeated Klate-Holt of Division III free-threw their way into the championship April 20 with a 53-51 victory over the Pick-ups in the second round of a single elimination tournament.

The Pick-ups, wild card team from Division III, were leading the game by two at half time but K-H sunk 8 of 9 from the line in the second half to clinch the title.

In a consolation game to determine third place, the Blue Turkeys of Division I forfeited to the Brewers of Division II. The Brewers had nearly beaten Klate-Holt in the first round of the tourney April 18. Final score of that game was 52-50.

## WOMEN'S VOLLEYBALL

With six games remaining to be played at *Roundup* press time, Lockheed had already locked up first place with a record of 26-1 over the High Hopes 18-9. Rookies stood in the number 3 spot with 14-13 so High Hopes have to have a string of bad luck not to finish in second.

## NEBA offers travel insurance

The NASA Employees Benefit Association offers group travel accident life insurance in addition to its group life insurance coverage.

The low cost travel insurance for NASA employees pays up to \$100,000 for accidental death while traveling.

For information of these or other NEBA services, call X-5410.

# Roundup Swap Shop

Swap Shop advertising is open to JSC federal and on-site contractor employees. Goods or services must be offered as advertised, without regard to race, religion, sex or national origin. Non-commercial personal ads should be 20 words or less, and include home telephone number. Typed or scribbled ad copy must be received by AP3/Roundup by Thursday of the week prior to publication.

## CARS & TRUCKS

72 Ford Gran Torino Wagon. All pwr, air, lugg rack, xint cond. \$1,695. 481-4590.

74 Pinto Runabout. New eng, AM/FM/cassette blt-in, radials. \$1,200. 782-2216 or 488-5010 after 6.

74 Fiat X 1/9. Pirelli P3's, mags, AM/FM/8 track, sharp looking. \$3,400. Nell, X-5841.

73 Plym Duster V8. Auto, air, pwr, vinyl top. \$1,650. Slight, X-7206 or 471-0834.

72 Ford Gran Torino Brougham. 351-V8, all pwr, air, AM/FM stereo, vinyl top. \$1,395. Larsen, X-2118 or 334-3432.

73 Merc Marquis Brougham. Loaded, all pwr incl doors, seat, windows; air, AM/FM stereo, cruise, new tires, 60K mi. \$2,595. Shock, X-3254 or 479-3653.

71 Merc Marquis Colony Park Sta Wgn. Loaded, clean, 1 owner. Faber, 482-7811.

73 Volks 412 Sta Wgn. Red, auto, air, fuel inj, 65K mi. \$1,525 or offer. Cheatham, X-2991 or 645-5074 after 5.

72 MGB. Needs some work. \$1,900. 488-1846 evngs.

72 Chrys Town & Country 9-pass sta wgn. FM stereo, air, trailer tow pkg, new steel radials. Reasonable. Silveira, 333-3767.

70 Toyota Corona. 4 dr, stick, air (needs charging), good shape. 332-5610.

73 Chevy Vega Estate. 4 spd, air, low miles, 30 mpg hwy, 24 mpg combined. \$1,700. Noakes, X-7484 or 482-3546 after 4:30.

73 Cadillac Coupe deVille. Blue w/white vinyl top, white leather inter, fully loaded. 53K mi. \$3,300. 944-4529.

71 Olds Custom Cruiser Sta Wgn. All xtras, mech perfect, needs paint. \$1,300. 488-1846 evngs.

73 Ford Pickup/GEM Topper. Radio, air, pwr brakes, whitewalls. Outstanding cond. \$2,495. 471-3174.

72 Coachman 24' Motorhome. Roof & dash air, generator, 3-way fridge, 2 holding tanks, sleeps 8, low miles, good cond. \$9,800 or best offer. 534-4275.

75 Chevy Open Road Van Camper. Sleeps 4. Stove/oven, sink, water heater, fridge, toilet, furnace w/thermostat, stereo tape/FM, aux batt & 110 hookup. 471-4419.

## CYCLES

73 Yamaha 650. Cundieff, X-2531 or 334-2305 after 5.

75 Honda 200 CB. 900 mi, like new. \$450. 488-1686 after 4:30.

Boy's 20" Schwinn StIngray bike. 334-1267.

## BOATS & PLANES

17' Caravelle. Deep-V, 125 HP Evinrude, super cond, great skiing & genl purpose use. Penrod, 334-1263.

Sailboat, beaut blue & white 16' Dolphin Senior w/trailer, 1977 license, \$650. Smith, 334-3396.

Boat trailer. 500lb capacity, galvanized, needs new axle. Asking \$75. 471-3303.

Boat trailer. Good cond, small wheels, painted. Will accomodate up to 14' boat. \$75 firm. St. John, 645-6267.

Cessna 150 for rent. Dual NAV-COMs, X-ponder, ADF. \$16/hr wet. Based Clover Field. Slight, 471-0834.

## PROPERTY & RENTALS

Rent, Arlington Hts. Spanish, 4-2-2, 2200 sq ft, drapes, fridge, washer/dryer. Avail June 1. \$450 mo. 941-2325.

Sale by owner. 3-2-2 brick on 70' lot, many xtras. Bayou Brae addition, League City. Low 40s. 554-7052.

Sale, wooded lot, 76X145, Sportsman's Retreat, Lake Livingston. Water, elec, phone service, restrictions. 538-2062.

Sale, Camino South, 3-2-2. Lg den w/cathedral ceiling, lg fenced backyard w/trees. Equity only \$11,500. 488-4915.

Lakeview lot, 90X145 on Lake Travis. Near airport, golf course, World of Tennis. Trees, paved street, utils. Owner financed. \$10,800. 333-3382.

Rent, Lake Livingston, Cape Royale. Compl furn home, 3-2-1. Fish, hunt, tennis, golf, etc. Wk/mo/yr rates. 488-4487.

Rent, 3 bdrm mobile home on Toledo Bend Lake by wk or mo. Croom, 944-5624.

Galveston West End. 2 bdrm By-the-Sea condo apt, full furn. \$180/wk off season, \$260/wk in season. Clements, 474-2622.

Rent, waterfront cabin at Lake Travis. Private covered boat dock, good view, comfortable. 991-4537.

Reserve for summer now. Jamaica Beach, Galveston, new 2 story. \$175/wk. 334-1640 after 5.

## STEREOS & CAMERAS

Marantz 1060 60W solid state stereo amp. Highly versatile, mint cond. \$100. 488-3966.

Craig portable AM/FM/stereo 8-track player. Good cond, everything works. \$50. Jim T., X-5973 or 649-5468.

Soligor 135mm pre-set lens. F2.8. Pentax mount or adaptor for Minolta. Gallagher, 487-0149.

Underwater camera attachments. \$500. 332-5993 after 5:30.

## HOUSEHOLD ARTICLES

Black modern dining set, 6 chairs. \$125. 488-3377 after 5.

GE dishwasher, yellow, new, Model GSD442-01HT, yellow store hood; \$15.

Three pc hickory set, bark on; table, straight & rocking chairs; \$140. Antique washstand, marble top & back, 2 dr w/towel rack, xint cond; \$185. 554-7052.

Frost free Whirlpool refrigerator (11 cu ft)/freezer (3.2 cu ft), xint cond; \$135 firm. Lg 3-seater sofa, naugahyde or similar, leaf green, minor upholstery repair; \$45. Samouce, 488-0406 after 5.

White Fr. Prov. Bdrm Suite. Dbl bed/canopy, dresser, nite stand, xint cond. \$200. 488-4915.

3 pc beige sectional couch, 1 section a hide-away bed, xint cond. \$200.

Lauritzen, 944-3615.

Spanish Armoire (chest on chest), \$125. Sears bicycle exercycle, \$35. 488-2652.

## MISCELLANEOUS

Folk guitar, nice sound. \$100. Cox, X-5967.

FREE: 3 beaut Amer shorthair kittens. Healthy, weaned, box trained, 9 wks old. 2 males, 1 fem. Ulrich, X-3325 or 487-0307.

'71 World Book encyc w/yrbks thru '75, \$150. Natl Geographic, July '70-Dec '73, \$20. 941-2325.

Several guns between wholesale & retail price. Ruger, Browning, Colt, S&W, H&R. 488-1846 evngs.

FREE: 3 cu yds good Texas earth, haul it away. For sale: Set Firestone 500 Steel Radial tires, H78-15. 334-1267.

Adding machines: Olivetti-Underwood 10 key manual, xint cond, \$20; Burroughs 10 key electric, \$35. File cabinets: 2 drawer steel, \$10 ea. Kennedy, X-6291 or 941-5179.

75 Wellcraft 20 Deep V I.O. Tandem trailer, many xtras, less than 100 hrs. Schneider, X-5281 or 426-4749.

Welder: Portable Model K301S Miller. 12 HP Kohler, used little, slight damage in wreck, fixed easy. New \$850, for \$500. 534-4275.

Smith & Wesson revolvers. New, in box w/guarantee. Model 15 nickel (.38 spec) \$175. Model 18 (.22 RF), \$190. Handley, X-2271 or 482-7041.

Wedding dress, long veil, size 10. Was \$180. Best offer. 488-3433.

Wetsuit: man's medium upper body style, blue Del Mar brand, xint cond. \$40. Thompson, 481-1518.

Artist's studio easel: Anco "Glendale" pro type, used little; \$85. Ankle weights: 5 lbs (1 pr), good for jogging & exercise; \$8. Ice hockey skates: size 5, new cond; \$9. 488-4005.

## WANTED

Charger for calculator, TI SR-51-II, 3.3 VAC, 500 MA, AC9131. Also honey extractor. Cheatham, X-2991 or 645-5074 after 5.

Home lease or rent for June-July while new home is being completed. Murray, X-3481 or 427-1380.

Need riders for carpool from W Loop, SW Fwy, Bellaire area. 8-4:30. McLaughlan, X-3771 or 661-2974.

Lionel or Amer Flyer elec trains & access. Working or not. 334-3182.

## LATE ENTRIES

Wanted: Piano tuner who can work on English antique piano. Holmes, X-4183 or 482-2060.

Sale or rent: Townhouse at Lakeway, Austin. 2-2-2, Casa Verde section; washer, dryer, fridge incl. 334-2416 after 6.

70 Buick Electra Limited. 4 dr hdtop, all pwr, good tires, clean, runs good. \$1000. Wilson, X-3827 or 488-4139.

340 cu in engine w/torque flite trans from 71 Dodge. Xint cond, xtra parts. \$250 for all. 488-8328.

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## JSC Crossword

We've gotten little feedback on the JSC Crosswords. If you like them and want to see them continued, drop us a line at AP3 or call me at X-5111. -Editor.

(See answers, page 4)

### ACROSS

- National Aeronautics & Space Act is one (2 wds)
- Galaxy component
- Soft drink
- Unfasten
- Support crew member for Apollos 14 & 17
- Flight journal
- One equals 3,280.84 ft

- Misstep
- Is indebted to
- Uncouth persons
- Patty Hearst's plea; \_\_\_contendere

### DOWN

- Audio Control Facility (acronym)
- Baseball great \_\_\_Gehrig
- Whole amount
- NASA's Virginia flight center
- Mission physician; flight \_\_\_
- Dynamite
- Fussy excitement
- Astronaut \_\_\_Evans
- Earth Orbital Mission (acronym)
- Lee Scherer is its director
- Bantu language
- Cover, top
- Pair
- Snake-like fish
- Range Safety Officer (acronym)

# Navy meteorologists, satellite track giant Antarctic iceberg

A gigantic iceberg nearly the size of Rhode Island is being tracked by satellite during its 2,900-kilometer (1,800-mile) journey along the Antarctic coast toward the open sea east of South America.

The iceberg — one of the largest ever recorded — appears to be temporarily grounded near the tip of the Palmer Peninsula and later is expected to drift slowly out of Antarctic waters toward South America and into the South Atlantic. There, after being exposed to warmer water, it should slowly disintegrate.

Working closely with NASA's Goddard Space Flight Center, Greenbelt, Md., Navy weathermen have been tracking it since 1971 when it broke off from the Princess Martha Coast of Antarctica.

They say it is 74 km (45 mi.) long, 40 km (25 mi.) wide, 230-345 meters (750-1,000 feet) thick and, if it could be towed to California, it would supply Los Angeles and the state with enough fresh water to last 1,100 years.

Although the idea of towing ice-

bergs for use in arid regions of the Earth has been discussed often in the past, no one has come up with a practical, economical way of doing it.

The huge iceberg isn't expected to be a serious danger to navigation because it is so large. However, if it does break into smaller chunks as it moves into open water, they too will have to be monitored closely via satellite by U.S. Navy Fleet Weather Facility (FLEWEAFAC) forecasters in Suitland, Md.

FLEWEAFAC has responsibility for weather forecasting and ice field routings in the polar regions for the Department of Defense and other agencies.

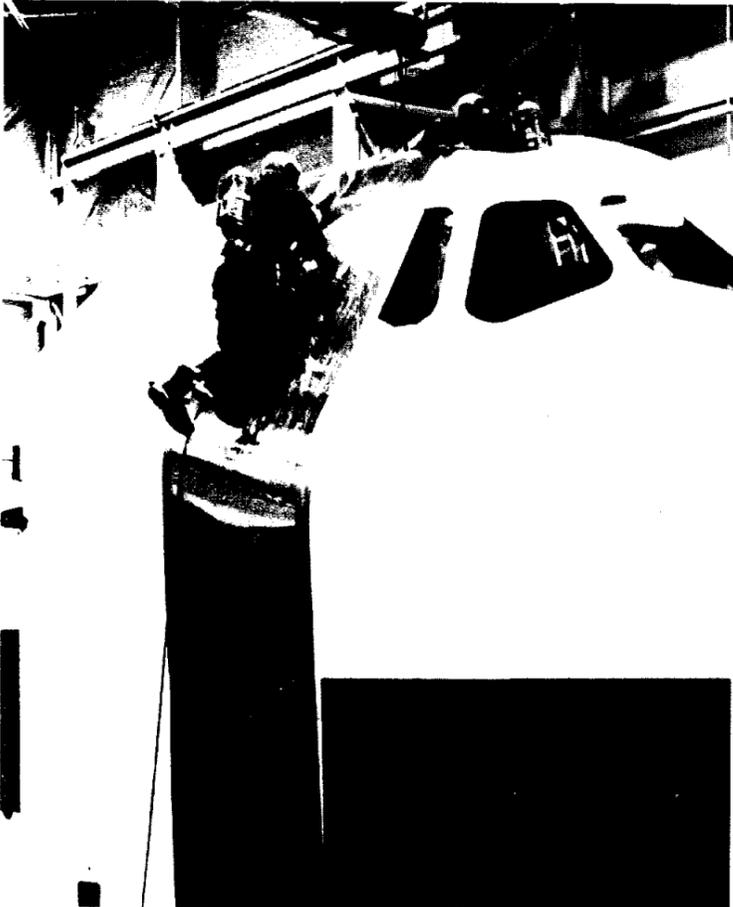
Goddard Center helps provide satellite analyses during the six-month polar night using the center's microwave radiometer on board the Nimbus-5 satellite. It not only can "see" through the dark, but through clouds over the ice caps.

Goddard also routinely supplies

Landsat (Earth resources satellite) imagery to FLEWEAFAC Suitland for 100 m (300 ft.) resolution visual pictures. The National Oceanic and Atmospheric Administration (NOAA) weather satellites provide operational visible and infrared imagery on a year-round basis.

Lt. Cmdr. Tom Nelson of the Fleet Weather Facility says although the "big berg" was first noticed on polar orbiting weather satellite pictures in 1971, inspection of previous pictures found it first showing in March 1967 photographs. Nelson said an ice tongue extending out from the Princess Martha coast of Antarctica, still seen on some maps, but actually no longer there, was broken off the ice shelf either by winds or by collision with another large iceberg.

Over the years during its 2,900-km (1,800-mi.) journey along the coast, the FLEWEAFAC watched it. In August 1975, it rammed into the Larsen Ice Shelf calving (breaking off) another huge iceberg nearly 22 by 58 km (13 by 36 mi.). This berg is also temporarily grounded and is near James Ross Island, Antarctica.



EMERGENCY EXIT — Astronaut Jerry Carr climbs out an overhead escape hatch as Terry Neal of the Crew Training and Procedures Division slides down a descent line during testing of the emergency egress procedure from the Orbiter for Approach and Landing Tests. The overhead escape panels must be jettisoned to allow egress from the flight deck. There is also an emergency escape capability through the side hatch on the lower deck. Carr and Neal practice the procedure on the plywood Orbiter mockup in Bldg. 9-A.

# NASA awards 2 developmental contracts for probe to explore Jupiter atmosphere

NASA has awarded two \$350,000 contracts to two industry teams for the development of specifications for a space vehicle to plunge deeply into Jupiter's atmosphere.

McDonnell Douglas Corp., St. Louis, Mo., and the team of Hughes Aircraft Co., El Segundo, Calif., and General Electric Co., Philadelphia, have received parallel contracts for design studies of an entry vehicle which would reach the giant planet in late November 1984 and make detailed measurements of its atmosphere and clouds.

The atmospheric entry vehicle would be the probe component of NASA's planned Jupiter Orbiter

with Probe (JOP) mission, requested as a new start in the space agency's budget for fiscal 1978.

The design studies will continue for 10 months, with a second-phase competition for hardware development planned for the spring of 1978 if Congress approves the project. Total project cost is estimated at \$285 million.

The JOP mission offers the first opportunity to make on site as well as remote measurements of the planet, its environment and its satellites from various orbiting positions.

The basic mission as now envisioned will involve probe separation from the orbiter while the two spacecraft are approximately 55 days away from the planet. The two spacecraft will continue on separate flight paths until the probe

enters the Jovian atmosphere and relays its data back to Earth via the orbiter. Approximately 30 minutes of data will be transmitted to the orbiter during the high speed descent.

After termination of the entry probe phase, the orbiter will be inserted into its initial Jovian orbit by an onboard retro propulsion system. Subsequent propulsion adjustments will permit the spacecraft to fly close to the Jovian moon Ganymede and to make more distant encounters with the other large Galilean satellites of Jupiter.

A single launch by NASA's Space Shuttle is planned for late 1981 or early 1982, and flight time to Jupiter will be just under three years.

The orbiter will be operated in orbit around Jupiter and near its

moons for at least a year.

NASA's Office of Space Science has assigned management of the JOP project to the Jet Propulsion Laboratory, Pasadena, Calif. Ames Research Center, Mountain View, Calif., will manage the probe system.

# Manager to discuss 747 carrier project

Shuttle carrier aircraft development and mated flight tests will be the topic of the May joint meeting of area chapters of the Instrument Society of America, Association for Computing Machinery and the Institute of Electrical and Electronics Engineers.

Carl B. Peterson, manager of the

### JSCrossword answers

(See puzzle, page 3)

L	O	N	S	C	A	D	S
S	E	M	O	P	L	I	S
R	E	T	E	R	O	M	E
		G	L	O			
N		F	U	L	E	R	T
O		C	O	L	A		
R		A	L	A	W		

# HL&P official to address AIAA section

The outlook for electrical energy in Houston will be the program topic for the May 10 meeting of the Houston section, American Institute of Aeronautics and Astronautics.

Jim Parsons, manager of public relations for Houston Lighting & Power, will be guest speaker at the meeting to be held at the Gilruth Recreation Center.

Social hour begins at 6 p.m., dinner is served at 7 p.m. and the program begins at 8 p.m. A barbecue dinner will be served. Cost is \$4.50.

The meeting is open to both members and nonmembers. Make reservations by noon Monday, May 9, by calling Lillian Hudson, X-4991.



LUNCHEON FOR FLETCHER — Outgoing NASA Administrator Dr. James C. Fletcher thanks more than 200 JSC employees who attended an appreciation luncheon in his

honor April 21 at the Gilruth Recreation Center. Fletcher has resigned effective May 1. He was appointed administrator on April 27, 1971.

Shuttle Carrier Aircraft Project, will be guest speaker at the May 19 luncheon meeting to be held at the Gilruth Recreation Center.

Members and nonmembers are welcome. The meal will be served at 11:30 a.m. and costs \$2.50. Program begins at noon.

For reservations, call Susie Caudel, X-4117, or Zafar Taqvi, X-6108, by noon May 17.

# Free BP screening offered

The JSC Clinic is offering free blood pressure checks to all civil service and contractor employees during the week of May 16-23.

Medical personnel will be set up to conduct the screenings at 12 different locations, including Ellington AFB, during the course of the week. The schedule will be announced later.

The American Heart Association recommends that everyone have their blood pressure checked at least once a year.